SUPERFUND RESPONSE ACTION PRIORITY PANEL REVIEW FORM

Date Form Completed: 06/20/2012

General Site Information

Region:	Region 5	City:	St. Louis	State:	MI
CERCLIS EPA ID:	MID00722439		CERCLIS Site Name:	Velsicol Chemical Corp	
NPL Status: (P/F/D)	Final (F)		Year Listed to NPL:	1983	

Brief Site Description: *(Site Type, Current and Future Land Use, General Site Contaminant and Media Info, Site Area and Location information.)*

The Velsicol Chemical Corporation/Pine River Superfund Site is located in St. Louis, Michigan, and encompasses a 52-acre land parcel. A chemical plant once occupied the site, which is located in a predominantly residential area. The Pine River flows along the western and northern boundary of the site into Mill Pond, where a hydroelectric dam is located (about ¼-mile east of the chemical plant).

Velsicol manufactured a wide variety of products from 1936 through 1977, including various salts; magnesium oxide; rare earth chemicals; fire retardants hexabromobenzene [HBB]; polybrominated biphenyl [PBB]; tris (2,3-dibromopropyl) phosphate [TRIS]); and pesticides dichlorodiphenyl trichloroethane [DDT] and 1,2-dibromo-3-chloropropane [DBCP]. The facility closed in 1977 and the aboveground site buildings were razed and some structures were buried onsite, including storage tanks and process piping. In 1982, Velsicol through a consent judgment installed a slurry wall around the 52-acre site and a clay cap was placed over the site, including the chemical plant demolition debris. The Pine River was not part of the consent judgment and Velsicol was given a release from liability. The site is currently fenced and the community would like to see recreational development at the site.

General Project Information

Type of Action:	Remedial	Site Charging SSID:	0532
Operable Unit:	01	CERCLIS Action RAT Code:	

Is this the final action for the site that will result in a site construction completion?	__Yes	X No
Will implementation of this action result in the Environmental Indicator for Human Exposure being brought under control?	X Yes	☐ No

Response Action Summary

Describe briefly site activities conducted in the past or currently underway:

Due to DDT contamination in the Pine River, EPA began a sediment remediation (using dry excavation techniques) in 1998 adjacent to the Velsicol site and was classified as OU2. The sediment cleanup was completed in 2006 and 670,000 cubic yards of DDT contaminated sediment was removed and disposed off-site. The OU2 cleanup stopped at the St. Louis hydroelectric dam. Over $100,000,000 was spent on the DDT sediment cleanup. During the sediment cleanup, DNAPL began leaking from the chemical plant property into the sediment excavation. A groundwater/DNAPL collection trench was installed to capture contaminated groundwater and DNAPL from re-contaminating the Pine River. In 2001, an RI/FS began by the State of Michigan to investigate the Velsicol site (OU1) since it appeared that the remedy installed by Velsicol had failed. Additional fish tissue data from the State of Michigan have shown elevated DDT levels downstream from St. Louis hydroelectric dam and EPA will begin an RI/FS downstream for OU3 in 2013, pipeline funding permitting.

Specifically identify the discrete activities and site areas to be considered by this panel evaluation:

For the former Velsicol Chemical facility:

- in-situ thermal treatment of DNAPL/DBCP principal threat waste soil areas;
- excavation and off-site disposal of principal threat waste soils;
- in-situ chemical oxidation for source area groundwater;
- replacement of the City of St, Louis municipal drinking water supply;
- installation of vertical barrier and perimeter drain surrounding site;
- installation of new groundwater/DNAPL collection trench;
- installation of DNAPL collection sump
- groundwater pump and treatment;
- installation of RCRA Subtitle C compliant cap;
- institutional controls

For the nearby residential properties adjacent to the former chemical facility:

- Phase 1 – remediate 10 homes with PBB and DDT contamination in 2012
- Phase 2 – additional cleanup of 50+ homes

Briefly describe additional work remaining at the site for construction completion after completion of discrete activities being ranked:

The activities being ranked encompass all remedial action activities associated with the site. The RI/FS for the new operable unit (OU3) is planned to begin in 2013 with decision-making design and action in future years.

Response Action Cost

Total Cost of Proposed Response Action:

($ amount should represent total funding need for new RA funding from national allowance above and beyond those funds anticipated to be utilized through special accounts or State Superfund Contracts.)

$143,000,000 capital costs.

Source of Proposed Response Action Cost Amount:

(ROD, 30%, 60%, 90% RD, Contract Bid, USACE estimate, etc…)

Record of Decision

Breakout of Total Action Cost Planned Annual Need by Fiscal Year:

(If the estimated cost of the response action exceeds $10 million, please provide multiple funding scenarios for fiscal year needs; general planned annual need scenario, maximum funding scenario, and minimum funding scenario.)

Because there are many components to the project, the proposed breakout of funding is based upon a maximum funding scenario. These components/plans can be adjusted based upon the availability of future funds.

FY2012: $500,000 FY2013: $4.99 million. FY2014: $17 million. FY2015: $41.2 million. FY2016: $7 million. FY2017: $8.9 million. FY2018: $4.7 million. FY2019: 5 million. FY2020: $7.9 million. FY2021: $8.9 million. FY 2022: 3.8 million.

Other information or assumptions associated with cost estimates?

Assumes +50% to -30%

Readiness Criteria

1. Date State Superfund Contract or State Cooperative Agreement will be signed (Month)?

The SSC will be signed August 2012.

2. If Non-Time Critical, is State cost sharing (provide details)?

n/a

3. If Remedial Action, when will Remedial Design be 95% complete?

- Phase 1 cleanup of 10 homes by August 31, 2012.
- Phase 2 cleanup of 50+ homes by April 1 2013.

4. When will Region be able to obligate money to the site?

Immediately upon receipt in September 2012.

5. Estimate when on-site construction activities will begin:

September 2012

6. Has CERCLIS been updated to consistently reflect project cost/readiness information?

Yes

Site/Project Name: **Velsicol Chemical Corp.**

Criteria #1 - RISKS TO HUMAN POPULATION EXPOSED (Weight Factor = 5)

Describe the exposure scenario(s) driving the risk and remedy. Include risk and exposure information on current/future use, on-site/off-site, media, exposure route, and receptors:

- Current and future residents in residential area adjacent to former plant site,
- Future residents at former plant site, including vapor intrusion,
- Future Site construction worker,
- Future recreational user of area,
- Current and future recreational users of Pine River adjacent to former plant site,
- Current and future anglers

Estimate the number of people reasonably anticipated to be exposed in the absence of any future EPA action for each medium for the following time frames:

MEDIUM	<2yrs	<10yrs	>10yrs
Soil	1,000+	1,000+	1000+
Groundwater	5,000	5,000	5,000

(for drinking water)			
Vapor	250	500	500

Discuss the likelihood that the above exposures will occur:

The presence of contamination in the residential area adjacent to the former plant site, principal waste threat wastes on the former plant site make it likely that exposure will remain into the future as well as re-contaminate the $100,000,000 fund-lead Pine River remedy completed in 2006.

Other Risk/Exposure Information?

A DDT byproduct called para-chlorobenzene sulfonic acid (pCBSA) is currently present in the city well field but is still under the state drinking water standard of 7,300 ppb.

Site/Project Name: **Velsicol Chemical Corp.**

Criteria #2 – SITE/CONTAMINANT STABILITY (Weight Factor = 5)

Describe the means/likelihood that contamination could impact other areas/media given current containment:

The discovery of DNAPL beyond the in the river sediments during the Pine River cleanup demonstrate that the previous remedy has failed. A interim collection trench has been installed to mitigate additional releases from the former plant site. The contaminant pCBSA, although currently under state drinking water standards, has been found in the city's municipals wells. This contaminant is an early indicator of other site related contaminants heading towards the city's well field.

Are the contaminants contained in engineered structure(s) that currently prevents migration of contaminants? Is this structure sound and likely to maintain its integrity?

No. The previous remedy has failed to contain contamination at the former plant site.

Are the contaminants in a physical form that limits the potential to migrate from the site? Is this physical condition reversible or permanent?

No – not permanent

Are there institutional physical controls that currently prevent exposure to contamination? How reliable is it estimated to be?

None currently

Other information on site/contaminant stability?

Slurry wall has failed in a number of places and the cap does not meet the original design specifications.

Site/Project Name: **Velsicol Chemical Corp.**

Criteria #3 – CONTAMINANT CHARACTERISTICS (Weight Factor = 3)

(Concentration, toxicity, and volume or area contaminated above health based levels)

List Principle Contaminants (Please provide average and high concentrations.):

(Provide upper end concentration (e.g. 95% upper confidence level for the mean, as is used in a risk assessment, or maximum value [assuming it is not a true outlier], along with a measure of how values are distributed {e.g. standard deviation} or a central tendency values [e.g., average].)

Contaminant	*Media	**Concentrations
DDT – residential area	SL	5,281 ppm
PBB- residential area	SL	570 ppm
DBCP	SL	5.4 ppm
DDT	SL	5,196 ppm
DBCP	GW	74 ppm
Benzene	GW	41 ppm

*(*Media: AR – Air, SL – Soil, ST – Sediment, GW – Groundwater, SW – Surface Water)*

*(**Maximum Concentrations: Provide concentration measure used in the risk assessment and Record of Decision as the basis for the remedy.)*

Describe the characteristics of the contaminant with regards to its inherent toxicity and the significance of the concentrations and amount of the contaminant to site risk. *(Please include the clean up level of the contaminants discussed.)*

State cleanup standards:

PBB in soils residential area – 1.2 ppm

Total DDT in soils residential area – 5 ppm

Xylene in soils – 150 ppm (C_{sat} value for DNAPL identification)

Chlorobenzene in soils – 260 ppm (C_{sat} value for DNAPL identification)

TRIS in soils – 27 ppm (C_{sat} value for DNAPL identification)

HBB in groundwater – 0.17 ppb (water solubility for DNAPL identification)

4,4-DDT in groundwater – 25 ppb (water solubility for DNAPL identification)

Bis(2-ethylhexyl) phthalate in groundwater – 340 ppm (water solubility for DNAPL identification)

Describe any additional information on contaminant concentrations which could provide a better context for the distribution, amount, and/or extent of site contamination. *(e.g. frequency of detection/outlier concentrations, exposure point concentrations, maximum or average concentration values, etc.....)*

None.

Other information on contaminant characteristics?

DNAPL on site captured in collection trench contains high concentrations of a wide variety of contaminants including chlorobenzene (280,000 ppm), 4,4-DDT (180,000 ppm), 4,4-DDD (225,000 ppm), 2,4-DDT (820,000 ppm), DBCP (13,000 ppm) and carbon tetrachloride (34,000 ppm). Groundwater captured in collection trench includes wide variety of contaminants including benzene (120 ppm), chlorobenzene (31 ppm), chloroform (15 ppm), 1,2 dichloroethane (21 ppm), and DBCP (74 ppm).

Site/Project Name:	Velsicol Chemical Corp.

Criteria #4 – THREAT TO SIGNIFICANT ENVIRONMENT (Weight Factor = 3)

(Endangered species or their critical habitats, sensitive environmental areas.)

Describe any observed or predicted adverse impacts on ecological receptors including their ecological significance, the likelihood of impacts occurring, and the estimated size of impacted area:

There are no endangered species or critical habitat observed at the site. However, delays in implementation of the plant remedy risk recontamination of the adjacent Pine River cleanup as well as the city's well field. In May 2012, dead robins were just discovered in residential properties adjacent to the former plant property. Analysis of brain tissue showed lethal levels of DDE which is a reductive dechlorination byproduct of DDT.

Would natural recovery occur if no action was taken? ☐ Yes _X_ No
If yes, estimate how long this would take.

No.

Other information on threat to significant environment?

Levels of total DDT in residential area as high as 5,281 ppm. Cleanup level for total DDT is 5 ppm.

Site/Project Name:	Velsicol Chemical Corp.

Criteria #5 – PROGRAMMATIC CONSIDERATIONS (Weight Factor = 4)

(Innovative technologies, state/community acceptance, environmental justice, redevelopment, construction completion, economic redevelopment.)

Describe the degree to which the community accepts the response action.

Majority of the community support the action but some members of the Pine River Superfund Task Force (TAG recipient) do not support the remedy. They have called for the complete excavation and off-site disposal of the site contamination costing $481M (capital and O&M). Pine River Superfund Task Force is very active and holds monthly community meetings. High political interest from Senator Carl Levin, Senator Debbie Stabenow and Congressman David Camp. The site was determined to be construction complete upon completion of the Pine River remedial action. Completion of the OU1 project will allow for new remedial action completions.

Describe the degree to which the State accepts the response action.

The state supports the action and concurred on the Record of Decision.

Describe other programmatic considerations, e.g.; natural resource damage claim pending, Brownfields site, use of innovative technology, construction completion, economic redevelopment, environmental justice, etc…

Upon completion of remedial action the site will be available for recreational reuse.